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Vol. 4, No. 6. January, 1935.

Agricultural Engineering.

Agricultural engineering investigations in the past twenty-five years. By A. L. Teodoro. 1934. 363-367p. Separate from the Philippine Agriculturist. v. 23.

Agriculture.

Informing the public about the A.A.A. By Alfred D. Stedman. 1934. 20p. Mimeographed. U.S. Department of Agriculture. Remarks at annual convention of American Political Science Association, Chicago, December 27, 1934.

New facts for California farmers. By C. B. Hutchison. 1934. 179p. California Agricultural Experiment Station, Report, 1932-1934. Preserving our land resources, p. 13-32. Helping agriculture through engineering, p. 95-103.

Organized agriculture program. Nebraska Farmer. v. 76, no. 26. December 22, 1934. p. 7, 18. Meetings come January 7-10, at Lincoln, Nebraska. Water conservation; Farm equipment and machinery.

Air Conditioning.

Attic ventilator cools home by expelling warm air. Popular Mechanics. v.62, no. 3. September, 1934. p. 383. By pulling warm air out of house, attic ventilator system lowers temperatures and creates house-wide circulation of fresh air drawn in from outside. Exhaust fan is located in attic to which warm air from rooms below is drawn through registers or trapdoors. As warm air is removed, cooler and fresher air is drawn in through windows. Tests show that attic temperatures fall as much as thirty degrees within short time after exhaust fan is started.

Choosing right air conditioning system. By A. Warren Canney. Heating, Piping and Air Conditioning. v. 6, no. 12. December, 1934. p. 508-511. Part 2. Air conditioning methods, equipment and problems they present.

Economics of comfort cooling. By J. W. Mersfelder. Electric Refrigeration News. v. 13, no. 17. December 26, 1934. p. 7-8.

Kelvinator will build demonstration house for air-conditioning equipment. Electric Refrigeration News. v. 13, no. 11. November 14, 1934. p. 1. When completed, it will serve to show how heating and air conditioning equipment manufactured by Kelvinator today can be applied to problem of year-round home conditioning. In design, construction, and equipment,

Air Conditioning. (Cont'd.)

Kelvinator home will resemble average residence of its type in this country, although window designs may depart somewhat from traditional. One of main purposes of house is to demonstrate that single model or set of equipment is not equally efficient, economical, and satisfactory in any part of country. Claim it will be possible to duplicate, in new house, air-conditioning results needed anywhere in United States.

Why air conditioning is at home in the prefabricated steel panel house. By P. F. Paddock. Aerologist. v. 10, no. 12. December, 1934. p. 31, 33. With insulation, walls of prefabricated steel panel house are about five inches thick. Repeated tests have shown that they have insulating value of masonry walls two feet thick.

Associations.

Agricultural engineers meet. By Walter B. Jones. Farm Machinery and Equipment. no. 1812. December 15, 1934. p. 5-6, 27. Summary of farm survey favoring use of rubber tires on farm tractors. Other engineering developments discussed.

A.S.A.E. power and machinery meeting. Farm Implement News. v. 55, no. 26. December 20, 1934. p. 18-20.

A.S.R.E. 30th anniversary. By C. T. Baker. Refrigeration. v. 56, no.6. December, 1934. p. 22-24, 26.

Minutes of proceedings of the Punjab Engineering Congress, Lahore, 1934. Lahore, 1934. 148p.

S.A.E. tractor meeting. Farm Implement News. v. 53, no. 26. December 20, 1934. p. 20, 22, 24, 30.

Building Construction.

Column base-plate design by concrete-beam analogy. By J. E. Lothers. Engineering News-Record. v. 114, no. 1. January 3, 1935. p. 5-6. Easily applied to majority of buildings, the method, which takes wind moments into account, eliminates use of cubic equations except for certain rare cases.

Construction league outlines objectives and new program. Engineering News-Record. v. 113, no. 25. December 20, 1934. p. 791-792. Objectives: 1. To coordinate all groups in construction industry. 2. To act as spokesman for industry in relations with public and with public officials. 3. To cooperate with other groups which, constantly or from time to time, may have interests in common with construction. 4. To carry on promotional and educational work of common benefit. 5. To combat investigations aimed to develop measures for stabilizing industry, eliminating waste and improving services rendered the public. 6. To encourage legislation that will help improve services of industry to public and oppose legislation detrimental thereto. 7. To take such measures and action as may be necessary or desirable from time to time to carry these objectives into effect. 8. To cooperate in improving relations between employers and employees. Emergency program. Normal program.

Building Construction. (Cont'd)

Federal financial participation in home financing, home building and housing. Federal Home Loan Bank Review. v. 1, no. 3. December, 1934. p. 68-74. Table gives Federal agencies using Government credit to aid home financing, home building, and housing.

Precise answer to question of inadequacy of American housing impossible without complete housing census, says Assistant Director Nathaniel H. Engle. Domestic Commerce. v. 14, no. 18. December 30, 1934. p. 204-205.

Sizes and weights of building bricks vary widely in the United States. Industrial Standardization. v. 6, no. 1. January, 1935. p. 10-13.

Conservation.

Long-range planning advocated by National Resources Board. Engineering News-Record. v. 113, no. 25. December 20, 1934. p. 796-797. Broad planning for use of our land, water and mineral resources is recommended to President in first report of federal board. Public works as an agency of recovery discussed. Extensive mapping proposed.

National Resources Board submits program for conservation of America's resources. Domestic Commerce. v. 14, no. 18. December 30, 1934. p. 208. Program would provide for systematic development of our water resources for sanitation, power, transportation, and recreation. It suggests plans for ending recurring extravagance in Federal, State, and by local governments. It also suggests permanent advisory board to serve as general staff for President. It cites relatively small use of electricity especially in rural districts, and compares prevailing high rates and low consumption, with much lower rates and much higher consumption in Seattle, Tacoma, Ontario, Winipeg and other communities.

Corrosion.

Corrosion problems. By John Johnston. Industrial and Engineering Chemistry. v. 26, no. 12. December, 1934. p. 1238-1244. Endeavor is made to outline more comprehensive view of the many problems of corrosion than appears to be held by many of those who write about this subject.

Cotton and Cotton Ginning.

Cotton control from farmer's viewpoint. By Dan Dove. Farm and Ranch. v. 53, no. 21. November 1, 1934. p. 15, 17.

Cotton production in Egypt. By P. H. Norris. 1934. 43p. U.S. Department of Agriculture, Technical Bulletin no. 451.

Dams.

Concrete gravity dam for faulted mountainous area. By Samuel B. Morris and Cecil E. Pearce. Engineering News-Record. v. 113, no. 26. December 27, 1934. p. 823-827. Morris dam for Pasadena, California,

water supply provides for earthquake resistance, numerous outlets for stream regulation, and spillway in difficult location.

Fort Peck dam - the Project. By Henry C. Wolfe. Military Engineer. v. 27, no. 151. January-February, 1935. p. 31-35.

Fort Peck dam - Progress of construction. By C. H. Chorpening. Military Engineer. v. 27, no. 151. January-February, 1935. p. 36-41

Hume dam on Murray River, Australia, completed for regulation. Engineering News-Record. v. 113, no. 26. December 27, 1934. p. 813. Work on structure has been under way since plans were completed in 1919, and cost is estimated at $27,000,000. 1,250,000 acre-feet of storage in reservoir formed will be used for regulation of river flow, conservation and extensive irrigation developments.

Ohio river movable dams. By Francis H. Oxx. Military Engineer. v. 27, no. 151. January-February, 1935. p. 49-58.

Drainage.

Vertical drainage. By Harry E. Besley. 1934. 4p. New Jersey. Agricultural Experiment Station. Circular no. 336.

Electric Service, Rural.

Some requirements for extending farm electrification. By R. B. Gray. Agricultural Engineering. v. 15, no. 12. December, 1934. p. 415-418.

Electricity in the Home.

This electrified home runs itself. Popular Mechanics. v. 62, no. 4. October, 1934. p. 514-516.

Electricity on the Farm.

Challenge of rural electrification. By E. A. White. Agricultural Engineering. v. 15, no. 12. December, 1934. p. 414, 418. Electrical age means not only decentralization of industrial activity, but also nationwide diffusion of marked improvement in standard of living for all groups and classes of our population.

Lights for the layers. By Bill Monahan. New England Homestead. v. 107, no. 23. November 10, 1934. p. 10-11. Results of lighting: 1. Lights will increase production. 2. Lights will have tendency to increase yearly production. 3. Lights will hasten breeders into production. 4. Lights will largely prevent winter moult of early hatched pullets. 5. Lights will hasten maturity of late hatched pullets. 6. Lights will increase late summer and fall production of birds finishing laying year. 7. Lights properly used will materially increase labor income. 8. Lights make for convenience in working and afford much protection against thieving.

Nine years of rural electrification. Extension Service Review, v. 5, no.10. October, 1934. p. 150. Discussion of work done in New Hampshire.

Employment.

Durable goods and engineering employment. Mechanical Engineering. v. 56, no. 10. October, 1934. p. 579-582. Report on present situation, by A.S.M.E. Committee on capital goods industries.

Engineering.

Progress in engineering knowledge during 1934. By F. L. Alger. General Electric Review. v. 37, no. 12, December, 1934. p. 551-562. Materials engineering. Design engineering. Application engineering.

Southwest engineering progress. Engineering News-Record. v. 114, no.1. January 3, 1935. p. 27. Water control and development work active in Texas. Organization started for $45,000,000 Brazos River project. Maverick water district improved. State planning and relief commission active.

Erosion Control.

Erosion is of two types. By Wm. A. Rockie. Idaho Farmer. v. 51, no. 23. October 19, 1934. p. 8. Both wind and water attack Pacific Northwest soils.

Permanent strip cropping in California. By Harry F. Reddick. Land Today and Tomorrow. v. 1, no. 3. December, 1934. p. 9-12. California rich citrus orchards being protected by bench terraces developed from permanent strips - adapting an idea from the ancients.

Saving farms in Jo Daviess County. Prairie Farmer. v. 106, no. 23. November 10, 1934. p. 3. CCC does valuable work.

Soil erosion control and soil moisture regulation in relation to state and national land-use planning. By H. B. Roe. Edited by William Boss. Agricultural Engineering. v. 15, no. 12. December, 1934. p. 428-430. Major effects of soil erosion as quite generally recognized are as follows: 1. Removal of virgin top soil without financial return. 2. Removal of fertile elements from soil at rate fully twenty times as great as that occasioned by crops removed. 3. Ruining of fields by gullying or debris inundation of lower lying lands, injury to or destruction of fences, buildings, crops and livestock, without financial remuneration. 4. Destruction of natural attractiveness of region in which serious erosion occurs. As result of intensive observation and research following facts have become matters of general knowledge: 1. Lowlands capable of proper underdrainage at economical figure as a rule are better suited to agriculture than uplands. 2. Practically all uplands of sloping or undulating surface are subject to more or less destructive erosion. 3. Erosion is far less active on areas covered with forest or other dense vegetative growth than on areas relatively bare of vegetation, or used for cultivated crops. 4. Intensity of erosion in given agricultural area is approximately proportional to age of agriculture in region. 5. Upper limits of steepness of lands for various uses without undue erosion have been quite definitely determined. 6. Types of crops, crop rotations, cropping and tillage methods, and engineering methods and works have been determined which properly applied or practiced will very nearly eliminate soil

Erosion Control. (Cont'd)

erosion on lands not too steep for agriculture. Reclamation of much badly eroded land is possible by means of similar procedures. 7. Relative to erosion there are at least three classes of land: those so badly eroded as to be incapable of reclamation within justifiable cost, those capable of reclamation within justifiable limit of cost, and those still in fair condition which may be kept so by rational treatment. 8. Much agricultural land in East and Middle West, including Minnesota, is subject to short, sharp summer droughts at uncertain and different periods, but all more or less inimical to various types of crops, particularly truck crops and small fruits. 9. Where available, relatively small amounts of water applied at intervals through short period obviate drought drainage, and spell difference between crop failure and successful maturing of valuable crops. 10. Instances exist where public waters now allowed to run to waste might be conserved for supplemental irrigation, through community effort at relatively small cost, and with assurance of large percentage of profit on investment. Recommendations.

To make the desert green. Arizona Producer. v. 13, no. 18. December 1, 1934. p. 1, 12. Work of Bureau plants and seeds to check erosion.

Farm Machinery and Equipment.

Barrel seed scarifier. By W. M. Hurst, W. R. Humphries and Roland McKee. 1934. 5p. U. S. Department of Agriculture. Leaflet no. 107.

Empire built from grass. By Addison E. Sheldon. Nebraska Farmer. v.76, no. 25. December 8, 1934. p. 8, 40. New machines and crops described from first-hand experience.

Hoe work on cotton is reduced by rotary cultivator. Popular Mechanics. v. 62, no. 3. September, 1934. p. 358. Implement consists of wheel having sixteen teeth pointing downward at right angles to rim or tire and mounted on beams of ordinary cultivator chassis, so as to revolve by tilting tire to one side so that spikes or teeth on that side sink deeper into earth than those on other. As team moves ahead, more deeply embedded teeth drag, causing those on opposite side to move forward. Rotary motion replaces usual motion parallel to rows. Slight damage to cotton results from crosswise motion of teeth.

How farm machinery creates employment. By Theo. Brown. Northwest Farm Equipment Journal. v. 48, no. 12. December, 1934. p. 29-32.

Increased farm purchasing power should restore earnings. By Stanley Devlin. Magazine of Wall Street. v. 55, no. 4. December 8, 1934. p. 207, 232. It is estimated that sales of agricultural machinery and equipment increased over 60% this year, and aggregate upwards of 192 million dollars.

International trade in agricultural machinery. Rome, Institut international d'agriculture, 1934. 200p. Study of import and export figures for farm machinery concerning 40 countries, 1928-1932.

Farm Machinery and Equipment.(Cont'd)

Machine picks cotton. Arizona Producer. v. 13, no. 19. December 15, 1934. p. 16. Primarily picker consists of endless belt carrying hundreds of smooth wire spindles, each of which rotates rapidly. As machine passes over row of cotton spindles penetrate plants. Prior to this spindles are automatically moistened. Moisture causes opened cotton to adhere to spindles, to be wrapped around them, and to be pulled from bolls. After this cotton is stripped from spindles and delivered by suction fan to container.

New pick-up machine for walnuts. By Ernest Braunton. Pacific Rural Press. v. 128, no. 17. October 27, 1934. p. 326. 1560 fingers, in pairs, pcik up nuts. Nuts are gathered in front, and sacking is done on rear platform. Whole machine is 20 feet long. Fingers, of human size, are in pairs on endless chains, each on an independent unit. Of these units there are 15 across five-foot front. Being independent, each is self-adjusting if ground is uneven. Each pair of fingers is automatically held open until they touch ground. There they are allowed to come together and they grab everything that presents itself of the shape and size of walnut. Mounted on harvester is vacuum machine, smaller, but more powerful than those used in packing houses. Soil and stones are too heavy for vacuum to pick up and they fall back on ground. Twigs and leaves are blown out of one side by fan. Nuts are discharged from vacuum machine on conveyor that carries them to sack. This vacuum separation leaves nut remarkably clean.

Small combines discussed. Implement and Tractor Trade Journal. v. 48, no. 25. December 15, 1934. p. 15. Proponents of two trends of design present aims and purposes of each to Chicago A.S.A.E. session.

State of the industry. By Harry G. Davis. Implement Record. v. 31, no. 12. December, 1934. p. 8-11. Actual facts and status of farm equipment trade analyzed by man who is best posted nationally.

Use of farm machinery for corn-borer control in the one-generation area. By R. N. Merrill. 1934. 11p. U.S. Department of Agriculture. Circular no. 321.

Farm Mechanics.

Home tanning of hides. By R. E. Nance. Southern Planter. v. 95, no. 11. November, 1934. p.10-11. Materials and equipment needed. Selecting, skinning and fleshing. Washing and curing. Tanning formula. Tanning with hair on. Tanning with hair removed. Making leather pliable.

Fertilizer Spreaders.

Application of fertilizers. British Sugar Beet Review. v. 8, no. 4. December, 1934. p. 81-82. Experimental work in U.S.A.

Fertilizer placement studies with potatoes in 1933. By B. E. Brown and G. A. Cumings. American Potato Journal. v. 11, no. 10. October, 1934. p. 265-273.

Fertilizers.

Analyses of commercial fertilizers, fertilizer supplies, and home mixtures for 1934. By Charles S. Cathcart. 1934. 31p. New Jersey. Agricultural Experiment Station. Bulletin no. 578.

Fertilizer studies with sugar beets in the Arkansas Valley area, Colo., 1921-28. By L. A. Hurst and A. W. Skuderna. 1934. 20p. U.S. Department of Agriculture. Circular no. 319.

Fire Protection.

Volunteer fire company. By William Draper Brinckloe. Boston, National Fire Protection Association, 1934. 144p.

Heating.

Alternative systems of heating glasshouses. By H. V. Taylor. Journal of Ministry of Agriculture. v. 41, no. 7. October, 1934. p. 632-639. Heating by hot-water. Electrical heating. Purchased steam. Condenser waste water. German experience with purchased heat supplies. German experiments in condenser water utilization.

Distillate burners. By Arthur H. Sonner. 1934. 12p. U.S. Department of Agriculture. Circular no. 335.

Heat requirements of buildings. By J. H. Walker and G. H. Tuttle. Heating, Piping and Air Conditioning. v. 6, no. 12. December, 1934. p. 515-519. Paper is contribution to work of Technical Advisory Committee on Heat Losses from Buildings. Its purpose is to make available certain data certain data relative to building heat losses as reflected in actual consumption of steam, which have been compiled by district heating companies. Primary objective of above mentioned committee is to study and improve methods of calculating heat losses for design of heating systems. Question of actual heat consumption of buildings is only incidentally related to that objective, but is of much practical importance. Its value is in prediction of heat consumption rather than in design of heating equipment, and it is of economic rather than technical significance.

Hotbeds.

Soil heating. By William Klopfer. Market Growers Journal. v. 55, no.12. December 15, 1934. p. 396-397.

Houses.

Home improvements. Popular Mechanics. v. 62, no. 4. October, 1934. p. 602-606.

Mountain cabin has some interesting features. American Lumberman. no.3038. January 5, 1935. p. 49. Diagram gives framing of octagonal mountain cabin.

Houses. (Cont'd)

Organization and management of cooperative housing associations. With model bylaws. 1934. 35p. U.S. Bureau of Labor Statistics. Bulletin no. 608.

Steel frame houses win approval. Agricultural Leaders' Digest. v. 15, no.6. October-November, 1934. p. 40-41. Stran-Steel frame makes possible, and economical, same type of construction which has been standard for large buildings for many years. Steel is standardized market product, handled by authorized dealers in practically every section of United States. It is erected by carpenters, and all collateral materials are attached to steel frame by common nails driven into cleverly designed nailing grooves, fabricated in steel. Not only does this house represent type of construction which safeguards lives of its occupants; it also eliminates unsightly wall cracks and costly repairs caused by shrinkage and warping of wood framing materials. All danger of attack by termites or rodents is removed, and high degree of occupancy-value is maintained over long period of years.

Insulation.

Aluminum foil provides protection and insulation for oil tanks. By W.S. McArdle. Southern Power Journal. v. 53, no. 1. January, 1935. p. 35-36. Enhancement of appearance, surface protection, lower volume shrinkage, such characterize use of aluminum foil for tank surfacing.

Heat insulation of buildings. By E. A. Allcut. Ice and Cold Storage. v. 37, no. 440. November, 1934. p. 187-188. Survey of test methods and test conditions.

Insulating value of hollow brick. By W. D. Richardson. Brick and Clay Record. v. 85, no. 6. December, 1934. p. 197-198.

Insulation for new cold stores. Cold Storage and Produce Review. v. 37, no. 440. November 15, 1934. p. 279-280. Modern practice and constructional problems. Observations refer mainly to use of compressed cork slab as insulating medium.

New plastic insulating refractory. By J. R. Parsons. Brick and Clay Record. v. 85, no. 6. December, 1934. p. 203-204. Product is rammed in place. May be used on hot face of wall up to 2500 F. and has high spalling resistance. Made of Vermiculite base with asbestos, clay or bentonite as binder.

When does building insulation pay? By Paul D. Close. Heating and Piping and Air Conditioning. v. 6, no. 12. December, 1934. p. 501-505. Where heat is required to maintain given temperature in winter air conditioning, or refrigeration is required for same purpose in summer air conditioning, building insulation permits maintaining desired temperature more economically

Irrigation.

Glossary of technical and vernacular terms in connection with irrigation in India, together with standard notations. 1934. 29p. India. Central board of irrigation. Publication no. 5.

Irrigation. (Cont'd)

Irrigation vs. over irrigation. By M. H. Kimball. California Cultivator. v. 81, no. 21. October 13, 1934. p. 516-517.

Overhead irrigation system is run by tractor. Popular Mechanics. v. 62, no. 3. September, 1934. p. 394. Tractor drives centrifugal pump, power take-off from tractor being connected to pump by belt driven through reduction pulley. Pump suction is taken from pit into which well discharges an eighty-inch head of water continuously. Discharge leads through four-inch galvanized pipe line to row of from 35 to 50 sprinklers located on right angle of same line and extending several hundred feet across field. Sprinklers are of revolving type, and are located twenty feet apart, each having covering radius of twenty feet or more. Eighty inches of water discharged through about forty sprinklers gives moisture penetration equivalent to two inches of rainfall after one and one-quarter hours of continuous operation. Whole outfit is portable, and when moved to new location, another water pit is dug.

Policies governing the ownership of return waters from irrigation. By Wells A. Hutchins. 1934. 48p. U.S. Department of Agriculture. Technical Bulletin no. 439.

Porous hose irrigation profitable. Extension Service Review. v. 5, no.10. October, 1934. p. 156.

Rain machine on rubber. By D. H. Daubert. Farm Implement News. v. 55, no. 25. December 6, 1934. p. 28. Rain machine consists of 4-inch high-speed centrifugal pump mounted on 3-4 plow tractor. Pump is mounted directly over transmission housing ahead of steering column and is driven from belt pulley shaft on right hand side of tractor through high-speed steel roller chain. Water is drawn in from head ditch through flexible 4-inch fire hose and is forced out under 55 pound pressure to thirty-one whirling, spraying nozzles. These nozzles are spread 20 feet apart, one at each joint pipe.

Jute.

Moisture absorption of jute. By J. H. Ingmanson and G. N. Vacca. Industrial and Engineering Chemistry. v. 26, no. 12. December, 1934. p. 1274-1275. Effect of bituminous treating mixtures.

Land Use.

Huge land area shelved. Equal of all farms in Northwest cut out of production. Oregon Farmer. v. 57, no. 23. November 15, 1934. p. 18.

Land measured by big wheel with counter at hub. Popular Mechanics. v. 62, no. 3. September, 1934. p. 383. Wheel is constructed of ordinary building lath, and is turned by convenient handle at hub. Small automatic counter near hub keeps record of number of revolutions, thus enabling operator to check distance between any two points in field.

Land Use. (Cont'd)

Land program for Montana. By E. A. Starch. Montana Farmer. v. 22, no. 6. November 15, 1934. p. 3, 10.

Montana's plan for rural rehabilitation. By Michael Kennedy. Montana Farmer. v. 22, no. 5. November 1, 1934. p. 7-8.

Needed - a unified land policy. By H. A. Wallace. Extension Service Review. v. 5, no. 10. October, 1934. p. 161. Most of the activities now under way can be summarized about as follows: (1) We are inducing producers of major crops to keep some of their land out of production temporarily, but we are encouraging them to use this opportunity to build up fertility on these idle acres; (2) we are buying several million acres of submarginal land (submarginal for farming) to be kept out of commercial production permanently; (3) we are offering thousands of distressed families, both rural and urban, an opportunity to relocate in areas where they can at least produce their own food, and eventually obtain their cash income from industry; and (4) we are trying to make secure our vast assets in publicly owned land, not only because of the effect on that public property itself, but also because of the effect on private property within sphere of influence. We do not know whether our agriculture and our industry are to move toward nationalistic self-sufficiency, toward internationalism, or to some planned middle course.

Real rural relief. Arizona Producer. v. 13, no. 19. December 15, 1934. p. 2-3. U.S. extends to Arizona new campaign to put people on land, aid those now there.

Some aspects of a national land program. By M. L. Wilson, 1934. 22p. U. S. Department of Agriculture. Address before American Farm Bureau Federation at Nashville, Tenn., December 12.

Lighting.

Characteristics of modern residence lighting. By E. W. Commery. General Electric Review. v. 37, no. 12. December, 1934. p. 566-569.

Oh say can you see? By Andrew Appleby. Electricity on the Farm. v. 7, no. 12. December, 1934. p. 4-6, 18.

Lubrication.

Automotive lubrication and lubricants. By H. C. Mougey. National Petroleum News. v. 26, no. 43. October 24, 1934. p. 23-26. Present and future requirements of greases are brought out. Emphasizes need of standardized classification of greases.

Meters.

Better methods for measuring air flow. Power. v. 78, no. 13. Mid-December, 1934. p. 723-724. New information on the characteristics of Pitot tubes and intake orifices will help in preparation of new Fan Test Code. Instrument for measuring pulsating flow described; pulsation in discharge from centrifugal fans is slight.

Meters. (Cont'd)

Quantity measurement of solids and liquids. Power Plant Engineering. v. 39, no. 1. January, 1935. p. 20-24. Weighing formerly considered only accurate method of fluid measurement now largely superseded by accurate flow meters. Table gives classification of fluid meters as adopted by A.S.M.E.

Tests of current velocity meters and their performance. By John C. Hoyt. Canadian Engineer. v. 67, no. 17. October 23, 1934. p. 3-7. Comparisons of measurements of discharge by price meter with measurements made by Hoff direct-action meters and by other methods.

Miscellaneous.

Digest of the purposes of current federal agencies, 1934. 50p. Mimeographed. United States Information Service, Washington, D.C.

End to unemployment. By Ralph E. Flanders. Mechanical Engineering. v. 56, no. 9. September, 1934. p. 515-519. Unemployment reserves, socially desirable projects, permanent, efficient public works, administration, and nation-wide system of employment offices constitute our line of defense.

Handbook of Michigan tax laws. By F. M. Thrun. 1934. 136p. Michigan. Agricultural Experiment Station. Circular no.153.

Measures of major importance enacted by the 73d Congress, March 9 to June 16, 1933 and January 3 to June 18, 1934. Compiled by Vajen E. Hitz, 1934. 55p. Mimeographed. U.S. Department of Agriculture. Agricultural economical bibliography, no. 54.

Motors.

This giant should be put to work. By L. J. Smith. Washington Farmer. v. 69, no. 26. December 27, 1934. p. 3. Article is introductory to series of brief, practical articles designed to familiarize readers with electricity and its practical uses in the upbuilding of the industry and rural life of Pacific northwest.

Paints and Painting.

Fundamental studies of paints. By A. C. Elm. Industrial and Engineering Chemistry. v. 26, no. 12. December, 1934. p. 1245-1250. Large number of tests extending over period of 2 years have shown that critical point of specific paint system as determined according to Wolff's method indicates pigment-binder ratio which gives best durability on exterior exposure. There is at present no evidence that critical points of dissimilar paint systems are indicative of their relative durabilities. Wolff's critical point method promises to become research tool of considerable value to paint chemist.

Paints and finishes for farm structures. By John W. Iliff. Agricultural Engineering. v. 15, no. 12. December, 1934. p. 424-427.

Paints and Painting.

Primers for wood. By Henry A. Gardner. Industrial and Engineering Chemistry. v. 26, no.12. December, 1934. p. 1272-1273.

Poultry Houses and Equipment.

Proper housing, lighting and feeding pay dividends on poultry in winter. By G. W. Knox. Arkansas Farmer. v. 32, no. 17. December 15, 1934. p. 7.

Power Projects.

Electric power from Tennessee Valley. By W. L. Sturdevant. Public Works. v. 65, no. 10. October, 1934. p. 37-39. First of series on gigantic T.V.A. development, this article describes program to extend use of electricity.

Mistake that should be corrected: Editorial. Engineering News-Record. v. 114, no. 1. January 3, 1935. p. 23. Discussion of Grand Coulee power project.

Water Power. By F. A. Annett. Power. v. 79, no. 1. January, 1935. p. 15-18. Government activity has stimulated hydro-electric power development to degree not dreamed of two years ago. Projects under construction will cost over $400,000,000.

Public Works.

Borad development plan proposed by Mississippi Valley Committee. Engineering News-Record. v. 114, no. 1. January 3, 1935. p. 19-21. Established by PWA to plan for use and control of water within Mississippi Drainage Basin, committee outlines development program for power, domestic water supply and disposal, irrigation, flood control, navigation, land use and recreation.

Northwest regional conference meeting discusses development of Columbia River. Engineering News-Record. v. 113, no. 26. December 27, 1934. p. 837. Important resolution passed at meeting recommended expansion of Grand Coulee project to include ultimate high dam, without immediate power or irrigation development. Much of discussion of Columbia River development centered on plan for navigation development. Inland waterway system reaching into every one of four Northwest states by means of Columbia, Snake, Willamette and Missouri Rivers was advocated, as part of development of power resulting from present work at Grand Coulee and Bonneville. Flood control benefit resulting from this river development work was an added point.

Salt River project costs. By H. J. Lawson. Arizona Producer. v. 13, no. 19. December 15, 1934. p. 6.

Rain and Rainfall.

Excessive rainfall in Texas. By A. M. Vance. 1934. 149p. Texas. Reclamation Department. Bulletin no. 25.

Reforestation.

Doctors dispute about trees. Science News Letter. v. 26, no. 712. p. 342-343. Climate will be affected only locally, but trees are expected to make West a better place to live.

Fighting the drough. Popular Mechanics. v. 62, no. 4. October, 1934. p. 483-485. Economic value of shelter-belt may be summed up as threefold. First, protection of farm lands adjacent to it. Second, supply of country through which it passes with wood, a scarce article on the plains. Third, stoppage of wasting of land through erosion, both by wind and flood, creation of work, and checking of droughs.

Refrigeration.

Operation and interesting applications of thermostatic expansion valve in commercial refrigeration. By D. D. Wile. Refrigeration, Cold Storage and Air Conditioning. v. 5, no. 7. October 31, 1934. p. 5, 7, 9.

Soil Moisture.

Distribution of soil moisture under isolated forest trees. By Herbert A. Lunt. Journal of Agricultural Research. v. 49, no. 8. October 15, 1934. p. 695-703. Study was made to determine actual distribution of soil moisture under individual trees in open during dry period in summer. In practically all cases lowest moisture content was found immediately beneath crown close to base of tree at two depths - soil surface and between second and fourth foot. Highest moisture content was usually at about 1-foot level, and increased with distance from tree. Relative wetness values were lowest in immediate vicinity of tree base, and they increased in irregular zones with increased distance from trunk, and with depth.

Variations in soil texture as revealed by moisture equivalent determinations. Journal of American Society of Agronomy. v. 26, no. 8. August, 1934. p. 713-715. Refers to article by H. A. Lunt on distribution of soil moisture under isolated forest trees appearing in Journal of Agricultural Research, October 15, 1934.

Soils.

Measuring soil fertility. By A. W. Blair. 1934. 4p. New Jersey. Agricultural Experiment Station. Circular no. 335.

Soil testing as guide to sound soil management. By M. F. Morgan. American Potato Journal. v. 11, no. 10. October, 1934. p. 259-265. Soil testing methods are exceedingly useful tools in more intelligent use of lime and fertilizers. However, it may take several years for us to calibrate them sufficiently accurately to use them as sole guide in drawing up best fertilizer formula, and it is not at all certain that this will ever be either possible or desirable. In meantime we can best use them as valuable indicators of soil conditions which cannot be revealed in other ways, to be interpreted in light of all other known facts in regard to past treatment and crop conditions, physical characteristics of soil and specific requirements of crops to be grown in future.

Specifications.

New A.S.T.M. standard specifications in construction field. Engineering News-Record. v. 113, no. 24. December 13, 1934. p. 750. Standard specifications adopted in 1934. New tentative specifications.

Surveying.

First-order triangulation and traverse in Arkansas. (1927 datum) By Walter D. Sutcliffe. 1934. 99p. U.S. Coast and Geodetic Survey. Special Publication no. 187.

Leveling in Arkansas. By Howard S. Rappleye. 1934. 161p. U.S. Coast and Geodetic Survey. Special Publication no. 188.

Terracing.

Is terracing enough? By T. B. Chambers. Land Today and Tomorrow. v. 1. no. 3. December, 1934. p. 1-5, 24-26. Terracing is a vital factor in erosion control, but not sole solution.

Tires.

Comparative study of pneumatic tires and steel wheels on farm tractors. By C. W. Smith and Lloyd W. Hurlbut, 1934. 40p. Nebraska. Agricultural Experiment Station. Bulletin no. 291.

Farmers O. K. rubber tires. Implement and Tractor Trade Journal. v. 48, no. 25. December 15, 1934. p. 11-12. Almost unanimous in their approval nation-wide survey shows, with sixty per cent using new equipment on old tractors in performing 48 operations.

Riding lister ridges with rubber-tired tractors. Implement and Tractor Trade Journal. v. 48, no. 25. December 15, 1934. p. 19. General recommendations to facilitate use of rubber-tired wheels: 1. Rows spaced 42 inches apart with spacing as consistent as possible. 2. Tractor tread should be twice spacing of rows. 3. Under most difficult conditions lug type chains should be used. 4. Wheel flanges both front and rear appear as best ultimate solution of steering. 5. Rolling and dragging ridges was found to be helpful. 6. Normal inflation, pressures and tire sizes are found to be most practical.

Riding on rubber. By J. Brownlee Davidson. Successful Farming. v. 33, no. 1. January, 1935. p. 8, 34. Air wheels for farm machinery are here to stay because they deliver what farmer wants: fuel savings; increased speed, traction, life; and, as important, greater comfort for operator.

Synthetic rubber tires wear well in tests. Popular Mechanics. v. 62, no. 3. September, 1934. p. 326. In direct comparison with natural rubber tires, new product has proved equally tough and durable.

Tractors.

Chin driving: Editorial. Farm Implement News. v. 56, no. 1. January 3, 1935. p. 16-17. There is not a farm tractor having as regular equipment any type of brakes other than individual rear wheel bands intended not for stopping entire tractor but to facilitate short turns by stopping inside wheel.

Future of farm tractor. Implement and Tractor Trade Journal. v. 48, no. 25. December 15, 1934. p. 21, 31. Greater utility permitting 300 days use a year, providing refrigeration, heating, electrical power and processing on farm.

How will future tractors look? Implement and Tractor Trade Journal. v. 48, no. 25. December 15, 1934. p. 13.

Some effects of diameter on performance of tractor drivewheels. By E.G. McKibben. Agricultural Engineering. v. 15, no. 12. December, 1934. p. 419-423. Summary: 1. On less firm soil conditions there was very important variation in performance of wheels investigated. 2. There was definite indication of affect of water content of soil on wheel performance. 3. There was further evidence of effect of even small variations of soil condition on performance of wheels. 4. Effective no-load rolling diameter (obtained by dividing distance traveled during one revolution by 3.1416) increased as firmness of soil increased. 5. Increase of effective no-load rolling diameter over rim diameter was greater for smaller wheels on firm soil, and for larger wheels on loose soil. 6. There was marked improvement in performance from smallest (38-in.) to largest (58-in.) wheels on pulverized soil. 7. There was also improvement in performance from smallest to largest wheels on oat stubble. 8. On relatively firm sod differences in soil conditions (this was an unsatisfactory field test field) were more important than variations in wheel diameter. 9. There was some indication of poorer performance of 46-in. wheels, which were 7/8 in. narrower and had lug spaced 3/4 inch closer, and of slightly better performance of 42-in. wheels which had lug rows spaced 1/2 inch wider. 10. Picture of effect of wheel diameter on performance would have been much more complete if a 20 to 30-in. and 70 to 80-in. wheel could have been included. 11. Difference in rolling resistance between smallest (38-in.) and largest (58-in.) wheels on loose soil was 95 lb. for bare wheels and 164 lb. when equipped with 4-in. lugs, and on oat stubble 53-lb. for bare wheels and 113 lb. when equipped with 4-in. lugs. 12. Adding 4-in. lugs increased rolling resistance of 38-in. wheels 134 lb. on loose ground and 416 lb on oat stubble, and 58-inch wheels 61 lb. on loose ground and 356 lb. on oat stubble. 13. There is no indication of materially increased resistance to turning except on sod. 14. Larger wheels have an advantage from standpoint of decreased tangential input force required to go over given obstruction. 15. Larger the wheels, smaller the obstruction which can be passed over without destroying stability of tractor. 16. In order to give more complete picture of influence of drivewheel diameter, relationship to lug length and rim width should be investigated further. 17. Further study, using methods of mathematics and analytical mechanics, should be made of this and other similar data to determine if possible fundamental laws governing influence of drivewheel diameter on performance.

Waste Products.

New uses for old crops. Popular Mechanics. v. 62, no. 3. September, 1934. p. 354-357.

Water Heating.

Sun heats water for home use. Popular Mechanics. v. 62, no. 3. September, 1934. p. 275. Solar heat is collected by copper sun-coil in glass-covered sash box four inches thick placed on roof of dwelling it is to serve. Bottom of sash box is lined with copper sheets which catch all rays that do not fall directly on sun-coil. These sheets are in direct contact with coil, so this heat eventually passes into circulating fluid inside coil. Water to be heated does not pass through this coil but is contained in well-insulated storage tank within house, tank being located at point somewhat higher than sash-box so heating fluid will rise to it by natural circulation. This fluid consists of non-freezing solution of alcohol and water, and as it becomes heated, it passes upward into circulation chamber within insulation chamber and surrounding tank. Heat from this fluid is transmitted through shell of tank to water inside, outer strata of this water becoming very hot and rising to top to be used. Heat loss by radiation does not exceed one degree per hour.

Water Supply.

Groundwater cutoff wall provides new water supply. By A. B. McDaniel. Engineering News-Record. v. 113, no. 24. December 13, 1934. p. 757-759. Harrisonburg, Va., adds to its supply by building concrete wall in valley from surface to bedrock to intercept underflow.

Hours of water-hauling saved by easy-to-build ponds. By Raymond H. Gilkeson. Missouri Ruralist. v. 75, no. November 17, 1934. p. 3, 17.

Look to next year's water. By Carl E. Hayden. Idaho Farmer. v. 52, no. 20. October 4, 1934. p. 4. Irrigationists would transfer power to increase storage. Seventy-five representatives of Southern Idaho canal and irrigation companies met recently with American Falls reservoir advisory board and adopted resolution providing for transfer of power from government-owned plants to Minidoka project to replace that ordinarily supplied from American Falls plant. Primary purposes of conference was to provide for filling present reservoirs, and to save additional water for storage in reservoirs to be constructed on north and south forks of upper Snake River.

Montana's ground-water supply. By Eugene S. Perry. Montana Farmer. v. 22, no. 7. December 1, 1934. p. 6, 23. Map shows principal artesian areas of Montana.

Weeds.

Study of suitable equipment for applying sulphuric acid for weed control. By O. C. French and W. E. Ball. Agricultural Engineering. v. 15, no.12. December, 1934. p. 411-413. Table 1. Results of tests employing various pressures, suction orifices, number of nozzles, and acid concentrations.

Wells.

How to construct an ice well. By H. F. McColly. Montana Farmer. v. 22, no. 6. November 15, 1934. p. 6.

Wind Pressure.

Wind-tunnel studies reveal pressure distribution on buildings. By W. Watters Pagon. Engineering News-Record. v. 113, no. 26. December 27, 1934. Tests of square prisms yield information on turning and overcoming moments, scale effect and effect of eddies. Mill-building models demonstrate importance of suction forces. Internal pressures with various amounts of wall openings.

Wood, Moisture Content.

How plastering affects moisture content of structural and finish woodwork. By L. V. Teesdale. American Lumberman. no. 3037. December 22, 1934. p. 42.

Wood Preservation.

Control of subterranean termites in dwellings. 1934. 4p. Alabama. Agricultural Experiment Station. Leaflet no. 1.

Field-creosoting plant for small construction job. By H. S. Riesbol. Engineering News-Record. v. 113, no. 26. December 27, 1934. p. 819. Principal elements are shown in illustration.